CLAIMS

1- "Distributed Global Clock for Clusters of Computers" characterized by a system of multiple time counters that comprises one or more pulse generator modules, which can be interconnected in a hierarchical structure when the number of modules is greater than one, local time counter modules, each of which associated to each node of the cluster, and cables for interconnecting the local time counters to the pulse generator module, or to the pulse generator modules, and these among themselves in the hierarchical structure, providing simultaneous initialization of all time counters in the system upon a reset signal coming from any of the processing nodes, after which they will remain synchronized by the pulses of the oscillator in the pulse generator module at the top of the hierarchy, which will increment synchronously all local time counters.

2- "Distributed Global Clock for Clusters of Computers" according to claim 1, characterized by cables, whose lengths can vary within limits that guarantee that the difference in propagation time of the reset signal between the central oscillator and any pair of counters does not exceed the cycle time of the central oscillator.

3- "Distributed Global Clock for Clusters of Computers" according to claims 1 and 2, characterized by cables, whose lengths can vary up to d meters with $d=v/f$, where v (in meters/second) is the propagation speed of electromagnetic signals through the cables and f (in Hertz) is the global clock frequency.

4- "Distributed Global Clock for Clusters of Computers" according to claims 1,2, and 3, characterized by a

structure of hierarchical modules where each pulse generator module, contains a fixed number of connections to the processors in the cluster and an extra connection to interconnect with the other modules, forming a tree-like structure.

5- "Distributed Global Clock for Clusters of Computers" according to claims 1, 2, 3, and 4, characterized by a pulse detector apparatus or an electromechanical key, to verify automatically whether a module is at the top of the hierarchy or not.

6- "Distributed Global Clock for Clusters of Computers" according to claims 1, 2, 3, 4, and 5, characterized by a method of propagating pulses of a clock, where the pulse generator modules in the intermediate levels, do not make use of their oscillators, but receive pulses from modules above in the hierarchy, and propagate the reset signals they receive from the modules above in the hierarchy to the modules below, and vice-versa.

7- "Distributed Global Clock for Clusters of Computers" according to claims 1, 2, 3, 4, 5, and 6, characterized by a method of propagating the reset signal, where each of the intermediate modules uses an OR gate to join all reset signals that arrive to it coming from points below in the hierarchy, and where the OR gate output is sent above in the hierarchy to allow the reset of the global clock, and where any incoming reset signal that the module or either other module or processing node generates in another point in the hierarchy goes up until reaching the pulse generator module at the top of the hierarchy.

8- "Distributed Global Clock for Clusters of Computers" according to claims 1, 2, 3, 4, 5, 6, and 7, characterized by a method of propagating the reset signal, where the pulse generator module at the top of the hierarchy joins the reset signals that arrive to it using an OR logical gate (or it uses an AND gate, if the reset signals were active on zero), and uses the output of this logical gate as the reset signal that goes down in the hierarchy of pulse generator modules until arriving simultaneously (within the same clock cycle) into all the processing nodes of the cluster.